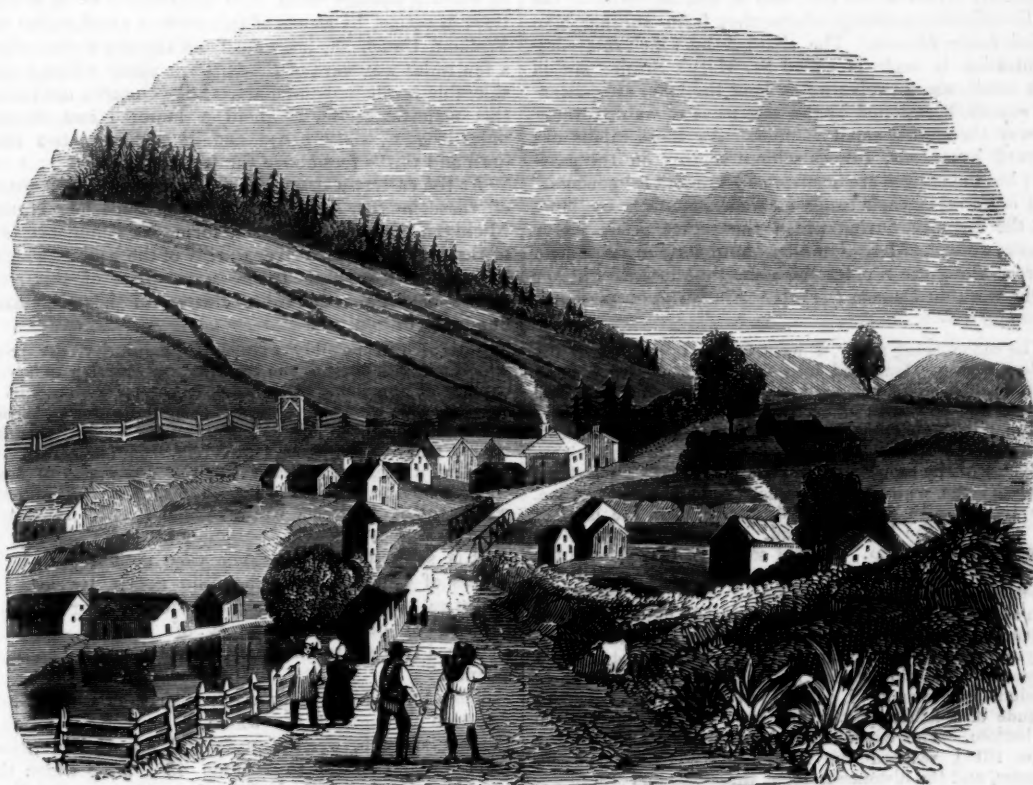




CANADIAN SKETCHES.



VILLAGE OF STANSTEAD, NEAR THE AMERICAN BOUNDARY.

I. GEOGRAPHICAL SKETCH.

THE present is the first of a short series of articles illustrative of Canada, its resources, the character of its inhabitants, its principal towns, and the events by which the present state of things has resulted from the past. As one of the most important of England's colonies, Canada obviously deserves a portion of attention, of a character similar to that which we have bestowed on Java, the Ionian islands, British Guiana, and other portions of the world. The reader will gain a more complete idea of the subject by following us through a rapid geographical sketch, with a map of Canada before him.

Canada occupies a large portion of the northern regions of America. Its southern extremity is Point Pelée, about the latitude of 42° north; the eastern extremity is Cape Gaspé, near the mouth of the River St. Lawrence, in longitude $62\frac{1}{2}^{\circ}$ west; and the western is at Fort William, on Lake Superior, in longitude 90° . With regard to the northern extremity, no particular boundary is established, since the Canadian territories and those surrounding Hudson's Bay are not definitely separated; it is usual, however, to consider that all the country north of the Great Lakes, whose waters fall into the St. Lawrence, belongs to Canada; while the

VOL. XXII.

districts watered by streams falling into Hudson's Bay belong (nominally, if not virtually) to the Hudson's Bay Company*.

The boundary of Canada is, indeed, rather ill-defined; for not only are the British possessions, northward, eastward, and westward of it, vague and unsettled, but until very recently the unfortunate "boundary question" between the governments of England and America, left open a disputed territory south of the St. Lawrence. This dispute arose out of conflicting opinions as to the interpretation of certain clauses in an agreement between the two countries many years ago; but the difference was amicably settled by a treaty signed during the last year at Washington, Lord Ashburton having been specially sent over by this country in order to settle the question. According to the best estimates, Canada may be deemed to have a length from east to west of about a thousand miles, and an average breadth of three hundred.

The grandest feature in Canada is constituted by the *Lakes*, the largest collections of fresh water in the world; five of which form a connected chain westward of the river St. Lawrence. The most westerly of these, Lake Superior, is four hundred miles long, and nearly two

* The reader will find an historical notice of the Hudson's Bay Company, in two Supplements on Fur and the Fur Trade, contained in *Saturday Magazine*, Vol. XX., p. 41, and Vol. XXI., p. 257.

hundred broad; it is surrounded by a line of coast seven-hundred miles in circuit, of which the northern part belongs to Canada, and the southern to the United States. Its surface is supposed to be equal to six-sevenths of that of all England. Its greatest depth is about eight hundred feet, but this is only two hundred below the level of the sea, for the surface of the water in the lake is about six hundred feet above that in the open ocean, an elevation which gives rise to many noble "rapids" and "cataracts," in the flow of the waters of the lake towards the Atlantic.

The waters accumulated in this noble lake from the numerous rivers which flow into it, find an outlet at the south-eastern extremity, where they form another lake called *Lake Huron*. The channel by which this communication is made is called *St. Mary's Strait*; and in this strait, about twelve miles from the lake, are powerful *rapids*, occasioned by the vast mass of water forcing its way through a small channel. As these rapids are deemed hazardous, canoes seldom venture on the passage; but the natives are accustomed to adopt a "portage," that is, to carry their canoe on their shoulders by land, for the distance during which the rapids occur. Our countrywoman, Mrs. Jameson, however, made a bold descent along the rapids, which she thus describes in her lively work on Canada (*Winter Studies and Summer Rambles*):—

The canoe being ready, I went to the upper end of the portage, and we launched into the river. It was a small fishing canoe, about ten feet long, quite new, and light and elegant, and buoyant as a bird upon the waters. I reclined on a mat at the bottom, Indian fashion, (there are no seats in a genuine Indian canoe); in a minute we were within the verge of the rapids, and down we went with a whirl and a splash! the white surge leaping around me—over me. The Indian, with astonishing dexterity, kept the head of the canoe to the breakers, and, somehow or other, we danced through them. I could see, as I looked over the edge of the canoe, that the passage between the rocks was sometimes not more than two feet in width, and we had to turn sharp angles, a touch of which would have sent us to destruction: all this I could see through the transparent eddying waters; but I can truly say I had not even a momentary sensation of fear, but rather a giddy, breathless, delicious excitement. I could even admire the beautiful attitude of a fisher, past whom we swept as we came to the bottom. The whole affair, from the time I entered the canoe till I reached the landing-place, occupied seven minutes, and the distance is about three-quarters of a mile.

Mrs. Jameson was the first European female who had descended these rapids; an exploit which won for her great admiration among the natives, who estimate personal courage as a very high attribute.

After having passed these rapids, and also a few islands situated in the middle of the strait, the flood of waters enters the Huron. This fine lake is of very irregular form, but is supposed to have a boundary coast of about a thousand miles. The surface of its waters is six hundred feet above the Atlantic, but the depth has been estimated very differently by different writers. In various parts of this lake are numerous islands, some of them as much as seven miles in length; and by their congregation into groups or chains, the lake is partially separated into different portions, to which the Indians have applied distinctive names. The waters of this lake, like those of Lake Superior, are about equally divided between Canada and the United States, the boundary line passing through their centres. Lake Michigan, however, the third of the series, which is connected with the west end of Huron, is wholly in the United States, and therefore need not be described here.

The waters from Huron leave it at the southern extremity by the River St. Clair, which, after passing through a small lake of the same name, empties itself into Lake Erie, the declivity between the two lakes being about thirty feet. Erie is of an elongated shape, extending nearly south-west and north-east, being about

two hundred and sixty miles long, by sixty in breadth. The northern shore, belonging to Canada, is somewhat rugged and precipitous; but the American shore is flat and low.

At the extreme eastern boundary of this lake a short river, the Niagara, proceeds due north for a distance of about thirty miles, into Lake Ontario, into which all the waters of the other lakes thus empty themselves. About midway along this river occurs that remarkable descent in the ground, which occasions the famous "Falls of Niagara," (a description of which has been given in former volumes*.) As it is quite impossible to effect a passage from Erie to Ontario, or in a contrary direction, by means of this river, a canal, called the Welland Canal, has been cut from the one to the other, a few miles westward of the Niagara, along which a considerable traffic is maintained. Lake Ontario, the last of this majestic series, is about a hundred and seventy miles long, by sixty broad, and its surface is two hundred and thirty feet above the level of the sea.

At the eastern extremity of the Ontario, the waters of these mighty lakes, comprising Superior, Huron, Michigan, Erie, and Ontario, form the commencement of the St. Lawrence, a river worthy of the sources whence it receives its supply. In the upper part of this river occurs a very remarkable cluster of islands, many hundreds in number.

Nothing can possibly exceed in singularity the scene which presents itself to the traveller, on entering that vast expanse of the noble St. Lawrence, known, on account of its numerous channels amongst the granite rocks, as the "Thousand Islands." Here Nature appears to have used her utmost fancy in preparing a grand proscenium to feast the wanderer's eye, ere it reach the vast open seas of fresh water which he is about to launch out upon. Of immense width, the St. Lawrence winds, in arms of every dimension, through a rocky country.

It is supposed that at some very remote period the waters of Canada, pent up within rocky barriers for centuries, suddenly burst through the opposing obstacle, forming at once the Cataract of Niagara, and the shattered fragments which now constitute the "Thousand Islands."

The St. Lawrence proceeds nearly in a north-east direction throughout the whole of its course, forming the boundary between Canada and the United States from Lake Ontario to latitude 45°; after which the boundary is wholly southward of the river, and follows a course which may be thus briefly indicated. It runs eastward along the parallel of 45° latitude across Lake Champlain, to near the sources of the Connecticut river, between 71° and 72° longitude; and then follows the course of a ridge of mountains which separates the streams flowing northward into the St. Lawrence from those which flow southward into the State of Maine. Near the junction of Canada, New Brunswick, and the United States, is situated the district which occasioned so much angry discussion as the "boundary question;" but this question rather affected New Brunswick and Nova Scotia than Canada. Stanstead, the village represented in our frontispiece, is situated in this part of Lower Canada, so close to the American boundary, as to obtain the designation of a "boundary village." But although, in a geographical sense, Canada has been affected by the unsettled state of this question, yet New Brunswick has been, and is likely to be, much more closely affected in a political point of view. It is with reference to the interests of New Brunswick that the English Government chiefly rested their arguments in this matter; and we will therefore postpone our notice of the subject to a sketch of New Brunswick, which will follow these articles.

We resume our journey down the St. Lawrence. Lake St. Francis and Lake St. Louis—names which

* See *Saturday Magazine*, Vol. II., p. 242; Vol. V., p. 3; and Vol. VI., p. 10.

indicate the French monarchs under whom some of the early voyages were made, or perhaps the Saint's days on which they were first seen by the French,—are two enlargements of the river, occurring a little to the north of the boundary-line, and reaching to the island of Montreal, which contains the town of the same name. The river Ottawa, a very considerable tributary, falls into the St. Lawrence at this point. Of this river, and of the romantic adventures of the Fur-traders who navigated it, we gave an account in the Supplement for January, 1842. Beyond the point of junction of these two rivers, we come to Lake St. Peter, another enlargement of the St. Lawrence, about twenty-five miles long by nine broad; and the river generally at this part is so wide and deep, that although Montreal is nearly six hundred miles from the Gulf of St. Lawrence, vessels of six hundred tons burden can sail up to it without difficulty. Somewhat to the north-east of this lake, the river St. Maurice contributes its waters to those of the St. Lawrence; and near it occurs the Richelieu rapid, a point where the narrowness of the river gives increased force to its current. Sir R. Bonnycastle, in his recent work on Canada, makes the following remarks on the portion of the St. Lawrence between Montreal and Quebec:—

I observed that both sides, particularly the northern bank of the St. Lawrence, were covered by a continuous settlement, apparently in a very flourishing condition. Indeed, it may with propriety be deemed a continuous village all the way to Three Rivers (the name of a Canadian county or district); and as there is a fine sandy beach, there is every facility for obtaining easily the supply of food which the St. Lawrence affords in such abundance. This continuity of farms may, without exaggeration, be said to reach from Quebec, with a few intervals, all the way to Montreal; thus affording a well-watched frontier in war, an easy communication, and excellent opportunities of transporting the produce of the interior in peace, whenever the rich country at the back of this belt of settlement shall be opened.

At that part of the river's course where Quebec is situated, the St. Lawrence is thirteen hundred yards wide; but beyond this the width increases in a very remarkable degree, so that at the very mouth the distance between the opposite banks is more than a hundred miles. The whole course through which the waters flow from the western extremity of Lake Superior, through the chain of lakes, and thence onward to the mouth of the St. Lawrence, is estimated at about nineteen hundred miles.

This extensive water-communication, forming as it does the southern boundary of Canada throughout nearly its whole extent, must necessarily have considerable influence on the country; and we may accordingly divide the latter into three large sections, regulated in their outlines, by their proximity to the Lakes. The first of these comprehends what is generally termed Lower Canada, that is, all the land northward of the St. Lawrence, and eastward of the Ottawa river. The middle section comprises a region bounded on the north-east by the Ottawa, on the south-east by the St. Lawrence, Ontario, and Erie, and on the west by St. Clair and the Huron, forming a territory nearly of a triangular form, and constituting with tolerable accuracy what is now known as Upper Canada. The western section comprehends all the country northward of Lake Superior.

In characterising these sections, we will begin with the western, which may be dismissed in a few words. It is a district almost wholly uninhabited by Europeans; the only settlers, except the native Indian tribes, being a few fur-hunters. It abounds with small lakes, and is supposed to have a fertile soil.

The middle section constitutes what is generally deemed Upper Canada, and is that part of the country to which emigrants generally proceed. The northern part of this section, the most removed from the Lakes, is still almost entirely occupied by the native tribes, few Europeans having yet taken up their abode there. The portion immediately northward of Lake Ontario consists

of a table-land and a series of natural terraces. But the western portion forming an equilateral triangle between Erie and Huron, is very flat, and is that to which the attention of emigrants is more particularly directed. This triangle measures about two hundred miles on each of its sides; and the whole tract is an alluvial soil of great fertility, containing neither stones nor gravel. Most of it is covered with large forests of maple, beech, oak, bass-wood, ash, elm, hickory, walnut, chesnut, cherry, birch, cedar, and pine. In the midst of these woods, and sometimes on the banks of the rivers, there are prairies, or natural meadows, of moderate size, generally covering a few thousand acres, and containing on them small scattered clumps of lofty pines, white oak, and poplar. In this middle section are two canals; one of which is the Rideau Canal, connecting Lake Ontario with the river Ottawa, and extending a distance of a hundred and thirty miles. The other is the Welland Canal, alluded to before as forming a channel of communication between Ontario and Erie, avoiding the Niagara falls; it is about forty-two miles in length.

The eastern section, comprising that portion of Lower Canada which is north of the St. Lawrence, is the part which has been longest settled. It includes Quebec and Montreal, the two most important towns in Canada, as well as many other towns on the banks of St. Lawrence. The populated districts, however, do not extend far inland; for the native inhabitants are still almost the only persons met with at any considerable distance from the river. And even of this section, only that portion which is westward of Quebec has been colonized to any considerable extent; for the country north-east of Cape Torment, situated about thirty miles below Quebec, is almost wholly unknown, even in the immediate vicinity of the river.

The portion of Canada not included in our enumeration, and lying south of the St. Lawrence, is not great in extent, and has hitherto received less attention than it deserves as a settlement; partly on account of the long-pending dispute respecting the boundary question. The district is known to contain numerous small lakes; but it is at present very thinly inhabited.

With regard to the climate of Canada, it is stated to bear considerable resemblance to that of Northern Germany, though in a more southern latitude. From two to four months in the year, the greater part of the country is covered with snow, and most of the rivers are coated with ice during a similar period. The temperature sometimes falls so low as 20° below zero of Fahrenheit, that is, 52° below the freezing point; while on the other hand, the Summer temperature frequently rises to 100°; the mean heat in July being about 70°. The rain which falls is moderate in quantity, and fogs are extremely rare; but thunder-storms are very frequent, and often productive of much damage.

YOUTH is the season of the greatest danger: the passions are strong, the judgment is weak, and there is little experience; the world is flattering and enticing, and Satan is laying his snares in every path. If the young have nothing better to look to than their own reason and earthly counsellors, they are sure to "go wrong;" if they have nothing to lean upon but their own strength, they are sure to fall. Look to the word of God: take that for your guide, your daily guide in life; pray God to fix it in your heart, that you may remember its holy precepts in the hour of temptation, and be preserved by them from danger. And never be ashamed of confessing that your hope and trust, your comfort and delight, are resting on the sure promises of God. While the sons and daughters of vanity are fluttering about in their foolish pleasures, which are as a wasting lamp that will soon expire in outer darkness, do ye, Christian children, delight yourselves wholly in the Lord; there can be no happiness but in Him and from Him. "Remember now thy Creator in the days of thy youth." "Lay up for yourselves treasures in heaven."—SLADE.

EASY LESSONS ON REASONING.

LESSON VIII.

§ 1. It has been shown, how, by taking an inadequate view of an individual, disregarding every point wherein it differs from certain other individuals, and abstracting that wherein it agrees with them, we can then employ a Common-term, as a Sign to express all or any of them: and that this process is called "generalization."

It is plain that the same process may be further and further extended, by continuing to abstract from each of the Classes [or Common-terms] thus formed, the circumstance wherein it agrees with some others, leaving out and disregarding the points of difference; and thus forming a still more general and comprehensive term.

From an individual "Cedar" for instance you may arrive in this manner at the notion expressed by the Common-term "Cedar," and thence again proceed to the more general term "Tree," and thence again, to "Vegetable" &c.

And so also, you may advance from any "ten" objects before you, (for instance, the fingers; from which doubtless arose the custom of reckoning by tens) to the abstract-term,—the number "ten;" and thence again, to the more abstract-term, "number;" and ultimately to the term "quantity."

§ 2. The faculty of Abstraction,—at least, the ready exercise of it in the employment of Signs, [Common-terms] seems to be the chief distinction of the Human Intellect from that of Brutes. These, as is well-known, often display much intelligence of another kind, in cases where *Instinct* can have no place: especially in the things which have been taught to the more docile among domesticated animals. But the Faculty of *Language*, such as can serve for an *Instrument of Reasoning*,—that is, considered as consisting of arbitrary general Signs,—seems to be wanting in Brutes.

They do possess, in a certain degree, the use of Language considered as a mode of communication: for it is well known that horses, and dogs, and many other animals, understand something of what is said to them: and some Brutes can learn to utter sounds indicating certain feelings or perceptions. But they cannot,—from their total want, or at least great deficiency, of the power of Abstraction—be taught to use language as an Instrument of Reasoning.

Accordingly, even the most intelligent Brutes seem incapable of forming any distinct notion of *number*: to do which evidently depends on Abstraction. For in order to count any objects, you must withdraw your thoughts from all differences between them, and regard them simply as *units*. And accordingly, the Savage Tribes (who are less removed than we are from the Brutes) are remarked for a great deficiency in their notions of *number*. Few of them can count beyond ten, or twenty: and some of the rudest Savages have no words to express any numbers beyond five.

And universally, it is in all matters where the exercise of Abstraction is concerned, that the inferiority of Savages to Civilized men is the most remarkable.

§ 3. That we do, necessarily, employ Abstraction in order to reason, you will perceive from the foregoing explanations and examples. For you will have observed that there can be no Syllogism without a Common-term.

And accordingly, a Deaf-mute, before he has been taught a Language,—either the Finger-language, or Reading,—cannot carry on a train of Reasoning, any more than a Brute. He differs indeed from a Brute in possessing the mental capability of employing Language; but he can no more make use of that capability, till he is in possession of some System of arbitrary general-signs, than a person born blind from Cataract can make use of his capacity of Seeing, till the Cataract is removed.

You will find accordingly, if you question a Deaf-

mute who has been taught Language after having grown up, that no such thing as a train of Reasoning had ever passed thro' his mind before he was taught.

If indeed we did reason by means of those "Abstract-ideas" which some persons talk of, and if the Language we use served merely to communicate with other men, then, a person would be able to reason, who had no knowledge of any arbitrary Signs. But there are no grounds for believing that this is possible; nor consequently, that "Abstract-ideas" (in that sense of the word) have any existence at all.

You will have observed also from what has been said, that the Signs [Common-terms] we are speaking of as necessary for the Reasoning-process, need not be addressed to the ear. The signs of the numbers,—the figures 1, 2, 3, 4 &c. have no necessary connexion with sound; but are equally understood by the English, French, Dutch &c. whose spoken-languages are quite different.

And the whole of the written-language of the Chinese is of this kind. In the different Provinces of China, they speak different Dialects: but all read the same Characters; each of which (like the figures 1, 2, 3 &c.) has a sense quite independent of the sound.

And to the Deaf-mutes, it must be so with all kinds of Language understood by them; whether Common Writing, or the Finger-language*.

§ 4. By the exercise of Abstraction, (it is to be further remarked) we not only can separate, and consider apart from the rest, some circumstance belonging to every one of several individuals before the mind, so as to denote them by a general ["common"] term,—and can also, by repeating the process, advance to more and more general terms;—but we are also able to fix, arbitrarily, on whatever circumstance we chuse to abstract, according to the particular purpose we may have in view.

Suppose for instance it is some individual "Building" that we are considering: in respect of its materials, we may refer it to the class (suppose) of "Stone-buildings," or of "wooden," &c. in respect of its use, it may be (suppose) a "house," as distinguished from a Chapel, a Barn &c. in respect of Orders of Architecture, it may be a "Gothic-building," or a "Grecian" &c. in respect of size, it may be a "large" or a "small building;" in respect of colour, it may be "white," "red," "brown," &c.

And so, with respect to anything else that may be the subject of our reasoning, on each occasion that occurs. We arbitrarily fix on, and abstract, out of all the things actually existing in the subject, that one which is important to the purpose in hand. So that the same thing is referred to one Class, or to another, (of all those to which it really is referable) according to the occasion.

For instance, in the example above, you might refer the "building" you were speaking of, to the Class

* There have been some very interesting accounts published, by travellers in America, and by persons residing there, of a girl named Laura Bridgeman, who has been, from birth, not only Deaf-and-dumb, but also blind. She has however been taught the finger-language, and even to read what is printed in raised characters, and also to write.

The remarkable circumstance in reference to the present subject, is, that when she is alone, her fingers are generally observed to be moving, tho' the signs are so slight and imperfect that others cannot make out what she is thinking of. But if they inquire of her, she will tell them.

It seems that, having once learnt the use of Signs, she finds the necessity of them as an Instrument of thought, when thinking of anything beyond mere individual objects of sense.

And doubtless every one else does the same; tho' in our case, no one can (as in the case of Laura Bridgeman) see the operation: nor, in general can it be heard; tho' some few persons have a habit of occasionally audibly talking to themselves; or as it is called, "thinking aloud." But the Signs we commonly use in silent reflexion are merely mental conceptions of uttered words: and these doubtless, are such as could be hardly at all understood by another, even if uttered audibly. For we usually think in a kind of short-hand, (if one may use the expression) like the notes one sometimes takes down on paper to help the memory, which consist of a word or two,—or even a letter,—to suggest a whole sentence; so that such notes would be unintelligible to any one else.

It has been observed also that this girl when asleep, and doubtless dreaming, has her fingers frequently in motion; being in fact talking in her sleep.

[or Predicable] of *white-buildings*,"—or even of "*white-objects*,"—if your purpose were to shew that it might be used as a *land-mark*: if you were reasoning concerning its danger from *fire*, you might class it (supposing it were of *wood*) not only with such *buildings*, but also with haystacks and other combustibles: if the building were about to be *sold*, along with, perhaps, not only other buildings, but likewise cattle, land, farming-implements &c. that were for sale at the same time, the point you would then abstract would be, its being an *article of value*. And so, in other cases.

§ 5. You thus perceive clearly that we are not to consider each object as *really* and properly *belonging* to and forming a portion of, some *one* Class only, rather than any other that may with truth be affirmed of it: and that it depends on the *particular train of thought* we happen to be engaged in, *what* it is that is important and proper to be noticed, and what again, is an insignificant circumstance, and foreign from the question.

But some persons who have been always engaged in some one pursuit or occupation, without attending to any other, are apt to acquire a narrow-minded habit of regarding almost everything in one particular point of view: that is, considering each object in reference only to their own pursuit.

For instance, a mere Botanist might think it something strange and improper, if he heard an Agriculturalist classing together, under the title of "*artificial grasses*," such plants as Clover, Tares, and Ryegrass; which, botanically, are widely different. And the mere Farmer might no less think it strange to hear the troublesome "*weed*" (as he has been used to call it) that is known by the name of "*Couch-grass*," ranked by the Botanist as a species of "*wheat*;" the "*Triticum repens*," the farmer having been accustomed to rank it along with "*nettles*, and *thistles*;" with which it has no *botanical* connexion.

Yet neither of these classifications [or "*generalizations*"] would be, in itself erroneous and improper: though it would be improper, in a Work on *Natural-History* to class plants according to their *agricultural uses*; or, in an agricultural Treatise, to consider principally (as the Botanist does) the structure of their *flowers*.

So also, it would be quite impertinent to take into consideration a man's learning or ability, if the question were as to the allowance of food requisite for his support; or his stature, if you were inquiring into his qualifications as a statesman; or the amount of his property, if you were inquiring into his state of health; or his muscular strength, if the question were as to his moral character: though each of these might be important in reference to a different inquiry.

The great importance of attending to these points, you will easily perceive by referring to the analysis of Reasoning which has been above given. For as the proving of any Conclusion consists in *referring* that of which something is to be affirmed or denied, to a Class [or Predicable] of which that affirmation or denial can be made, our ability in Reasoning must depend on our power of *abstracting* correctly, clearly and promptly, from the subject in question, that which may furnish a "*middle-term*" suitable to the occasion.

NOTE. In case any student should find it difficult to understand any part of these Lessons, he may write to the Publisher of the *Saturday Magazine*, (endorsed for the Writers of the Lessons,) stating his difficulty, and an explanation may perhaps be furnished in some succeeding Lesson.

A PROVERB is the wisdom of many, and the wit of one.

When several wise men have drawn some conclusion from experience and observation, a man of wit condenses it into a short pithy saying, which obtains currency as a Proverb.

ON INSECTS WHICH ARE INJURIOUS TO THE FARMER.

IV.



THE SAW-FLY.

THE saw-flies (which betoken the appearance of the black caterpillar upon our turnip-crops) usually begin to show themselves in May. The males appear a few days earlier than the females; the latter, when they appear, are easily to be distinguished by their larger size, which makes their bright orange colour the more conspicuous. Both sexes are very active, and are chiefly observed on the wing. When the female is seen walking on a leaf, it is generally for the purpose of depositing her eggs. They are however torpid in wet or cloudy weather, and also at close of day they rest beneath the leaves or in the flowers of some of the cruciferous plants.

When the female saw-fly is about to deposit her eggs, she first carefully examines the leaf, and if, after she has commenced cutting it, she finds it not quite adapted to her purpose, she rejects it, and begins another. It is a curious fact that she almost universally avoids laying her eggs in the seed-leaves of the turnip, as if she were endowed with so much knowledge of the economy of the plant, as to be aware that the seed-leaves may very possibly be withered up before her young progeny make their appearance. When the parent-fly has found a suitable place for her brood, she fixes herself on the edge of the leaf, and thrusts her saws into it nearly up to their base. She then brings them round, forming the segment of a circle, and separating the cuticles. Thus she forms a cavity, which may be seen with the help of the microscope, by holding the leaf up to the light. This process occupies about half a minute, and is immediately followed by the deposition of an egg along with which a small portion of fluid is injected into the leaf to keep it moist. The four lancets are then withdrawn, and a similar operation commenced anew, until five or six eggs have been laid, each in its distinct cell. Each female is capable of laying from two hundred and fifty to three hundred eggs, and sometimes she deposits twenty eggs in a single leaf. As soon as she has done laying, she expires, yet it is affirmed by those who have had the best opportunity of gaining accurate information, that such is the vitality of the sex, that she will walk, run, and even attempt to fly, after decapitation. Mr. Marshall had a female saw-fly standing and dressing its wings for many hours after losing its head, and it actually lived in this state for three days.

In fine warm weather the eggs of the saw-fly are hatched in five days or even less; but if the weather be wet or cold, the young caterpillars may not appear for six, seven, or ten or eleven days. They then eat their way through the thin cuticle of the leaf, and are at first only the tenth of an inch in length, almost white, and scarcely visible. They begin to feed on the under part of the leaves in less than two minutes, and that so voraciously that in a few hours they have often drilled through them. In this early state they cling very firmly to the leaf, and in contrast to their subsequent condition, can scarcely be shaken from it. They soon become of a dull greenish-white colour, with jet-black shining heads. In about a week from the time they are hatched, they change their skin for the first time, and become increasingly voracious. They are now one-fifth

of an inch in length, and much darker in colour, some of them being almost jet-black. Thus they change their skins three times at intervals of from six to seven days. When full grown they are about three-quarters of an inch long, and of the thickness of a crow-quill. They are perfectly smooth, of a dark grey or slate-colour, with small black heads. The body is composed of twelve segments besides the head. The caterpillar has twenty-two legs, and the pair at the extremity of the body are so formed as to enable it to take fast hold of an object. These caterpillars are well known to delight in the sun, and to lie curled upon a leaf enjoying its rays. While they are in their first skins they have the power of emitting a silken thread to let themselves down when shaken from a leaf, and to regain their position when the danger is passed; but at a later period they lose this power, and are therefore easily detached, and have some difficulty in regaining their position. The full growth is attained by this caterpillar in about three weeks, and very soon afterwards it descends from the leaves, and enters the earth, burying itself one or two inches below the surface, and forming a cocoon of a beautiful silvery texture within, though from its glutinous nature it adheres to particles of earth and sand, and looks on the outside like a small lump of earth. The time which is occupied by the insect in the chrysalis state is different according to the season. Some of the early broods come out as perfect insects in three weeks; while later in the season the change may occupy three months ere it be accomplished, and it is thought probable that one-third remain in the cocoons all through the winter.



THE CHRYALIS OF THE SAW-FLY IN ITS DIFFERENT STAGES.

In noticing the causes which may operate to check the progress of this destructive agent, we shall first allude to those which affect the insect in its perfect state. The prevalence of cold moist weather, during the period when the saw-fly first appears, may certainly effect the saving of the crop, for it is well known that the insect only becomes vigorous, and deposits its eggs, in sunny weather. Now this being the case, it naturally leads us to think of the first step which may be taken to prevent the progress of the evil. If it is found that the insect requires dryness and warmth for laying its eggs, might not the frequent watering of the turnips, when first the fly appears, be the most evident check on its proceedings? Mr. Curtis thinks that in all probability the crop might thus be saved; but of course this plan supposes great watchfulness on the part of the farmer, to detect the fly immediately on its appearance, and promptly to take the necessary steps. Sometimes the turnip-fly is the object of pursuit to the swallows, and they perform an essential service to the farmer in its destruction. But this is a remedy beyond his control, and it only remains to us to state a suggestion that seems to promise well, *i.e.*, the scattering of finely powdered salt over the turnips when they are wet, and thus preventing the parent fly from depositing her eggs. We are not aware of any other preventative that has been proposed in this early state of the insect, though it is evident that it would be of far greater importance thus to check the evil at its commencement, than at any after period in the existence of the insect.

Most of the plans relate to the time when the caterpillars have actually made their appearance. The occurrence of rains is not less hurtful to the young caterpillar than to the perfect insect; indeed, if wet weather prevails, it so affects the nature of their food, by making the leaves unwholesome to them, that they die

off in great numbers. Just as silkworms, when fed on wet leaves, die of a kind of dysentery, so the black caterpillars are affected by the same cause, and though they may recover from the effect of partial showers, yet they are unable to withstand a rain of any continuance. Those who closely watch the appearance and changes of the insect, may take advantage of another circumstance which has been observed in the economy of these creatures, *i.e.*, that if disturbed when changing their skins, they become unable to extricate themselves, and die in consequence. Thus if the time of their appearance be carefully noticed, and if it is calculated that in about a week, or nearly that period, the caterpillars change their skins for the first time, it is obvious that any plan which may be adopted for ridding the fields of these unwelcome visitants, will be more likely to meet with success at that time, than at any other. After each moult, the caterpillars atone for the short period of inaction by feeding in a most voracious manner, so that fatal attacks on the crop may be expected at that time.

As the swallows are serviceable in reducing the number of the saw-flies on their first appearance, so do the rooks perform an important part in destroying the caterpillars. A careful observer of the crops during the ravages of the black caterpillar, tells us that a large piece of turnips, lying in an open field, had escaped in a remarkable manner; it lay near a rookery, and was a general rendezvous for these birds, so that the field was often covered with them. We trust that this fact will not pass unnoticed among our agricultural friends, but will lead to the encouragement of rook-building, and prevent the destruction of the young birds. The mischief done by rooks is not to be compared to the good they effect in keeping insects and caterpillars of various kinds in check.

Of the various means employed to destroy the caterpillar, that which has become the most generally useful, and indeed we may say universally successful, is the employment of a sufficient number of young ducks. They are naturally very fond of worms and caterpillars, and therefore, when turned into a field where such an abundant repast is spread out before them, they enter upon their work with hearty good-will, often to the entire saving of the crop; and even when one part of the field has been nearly destroyed, the remaining part has been restored to comparative health and prosperity by the aid of these valuable assistants. It would be wise in the farmer, however, not to allow the caterpillar to remain long before the ducks are turned in. If the evil is taken in time, it may be completely counteracted. We are told that on two farms in Norfolk nearly four hundred ducks were employed at one time. Where such large numbers are employed, it is recommended that they be formed into detachments of not more than one hundred, each detachment being attended by a boy or girl, to go before them with a long light pole or willow-rod to brush the caterpillars off the leaves, as well as to drive the birds to water and to rest three or four times a day. The ducks must be driven home at night, and fed with a little barley or other grain, or so much living animal food will be injurious to them. Ducks that are from three to five weeks old are found to work the best: old ducks do not answer the purpose. If the young ducks do not take to the food the first day they will do so the second, but in general there is no difficulty in getting them to feed on the caterpillars. Poultry are said to be equally useful. A Chertsey farmer put 150 half-grown fowls into a waggon and drew it into the middle of a cankered field. The fowls were there turned loose, and quickly annihilated the caterpillars; they also rendered the same service on an adjoining farm immediately after. We cannot say that we should greatly relish the eggs or flesh of fowls that might be employed on this service; but where such important interests are concerned it is not wise to be fastidious. Pigs are also said to

destroy the black caterpillar to a very great extent, and without doing any injury to the crop.

Other means which have in some cases been successful, while in others they have failed, are the following: strewing lime-dust or powdered chalk over the attacked portion of a field;—passing a heavy roller over the field, (a practice objected to because at the period of the caterpillars' greatest ravages the turnip crop is too far advanced to be rolled without injury);—sweeping the crop several times with a cart-rope, performed most effectively on the evening of a wet day;—lashing some branches of green furze to an axle-tree connecting two wheels, so that the turnips may be well brushed without being uprooted;—drawing a hurdle bushed with smooth boughs down the rows for a similar purpose;—brushing the crop with elder boughs, which by some are supposed to possess peculiar virtues;—digging a trench between the infected part of a field, and that which had not been attacked. Hand-picking may be mentioned last, but not as being the least effectual. Where the caterpillars are very numerous, they may be brushed off into baskets or sieves; otherwise pints or smaller pots are suitable for collecting them.

We conclude our notice of this caterpillar with an important remark of Mr. Curtis:—

Whilst any attempts are making to diminish or to extirpate the caterpillars, the turnips should not be touched with the hoe; few of the larvæ are killed by the operation, and as their food is thereby reduced possibly one-half, the remainder with more speed and greater certainty falls a sacrifice to their ravages; moreover hoeing, by loosening and refreshing the earth, renders it more agreeable and better suited to receive the full-grown larvæ, when they are led by instinct to bury themselves; but as soon as the caterpillars have disappeared, the hoes may be set to work with great advantage where the crop is only partially injured, for then it will disturb and destroy multitudes of those that have entered the earth: and if this could be immediately followed by throwing salt and water from a water-cart over the crop, it would have a most beneficial influence, and this could be effected without much difficulty or detriment where the turnips are drilled in, and the same liquid, or even common water, if thus applied the instant the saw-flies make their appearance, would drive them away also, as such a state of the plants is not adapted to the deposition of the eggs; and the saw-flies themselves, although from their polished surface, the pubescence which clothes some of their members, and probably from an oily exudation, they can easily recover when they fall into pure water and escape from its surface, yet when they are forcibly washed off the plants and get entangled with the soil, as lime, clay, or any other earthy matter, especially in cold weather, the greater portion of them would be rendered incapable of doing further mischief.

Lo! o'er the grave where her loved infant sleeps,
In silent woe the mother bends, and weeps:
Blame not her grief, nor check the tears that fall,
Chastised by patience, at affection's call;
While Faith, who sees, in realms beyond the sky,
The things invisible to mortal eye,
Breathes to the sainted babe this heaven-taught strain,
"To thee 'twere loss to live, to die is gain."

O BLIND to each indulgent gift
Of Power, supremely wise
Who fancy happiness in aught,
That Providence denies!
Vain is alike the joy we seek,
And vain what we possess,
Unless harmonious Reason tunes
The passions into peace.
To temperate bounds, to few desires,
Is happiness confined;
And deaf to folly's noise, attends
The music of the mind.—MRS. CARTER.

THE CONTEMPLATION OF HEAVEN WEANS THE AFFECTION FROM EARTH.

COMPARED with the enjoyments of the blessed, how insignificant is the happiness which this world can bestow. All the constituents of happiness in this life are imperfect, and mingled more or less with circumstances of painful compensation.

I would not wish to depreciate the rational pleasures of our earthly existence, nor to abate those feelings of content, and cheerfulness, and joyousness, and innocent delight, wherewith I believe it to be the will of God that we should partake in the temporal and earthly blessings with which it hath pleased him to surround us. "He hath not left himself without witness" to his loving-kindness, as well as to his power, "in that he doeth good, and giveth us rain from heaven and fruitful seasons, filling our hearts with food and gladness." And the creatures of God are good, if they be received with thanksgiving, and with "trust in the living God, who giveth us all things richly to enjoy."

Of the things, indeed, which constitute merely worldly enjoyment, "the good things," of the men of the world, many have but small pretensions to be accounted really good. But whatever be the pleasurable circumstances of the best sources of earthly enjoyment, they are accompanied by a large admixture of different ingredients. We need no voice from heaven to teach us, what the experience of all must notice, and the hearts of all must feel, that "man is born to trouble as the sparks fly upward;" that the fairest and brightest scene of his existence is liable to be overclouded with the cares of this world; with perplexity, and anxiety, and fears, and sorrows, and disappointments, and mortifications, and distresses, and diseases, and the loss of his nearest kinsmen, and his dearest friends, and of all other things which make life enjoyable. But the happiness of the blessed is free from all these occasions of alloy. Of that state there is no evil to disturb the serenity and the delight. "God hath wiped away all tears from their eyes; and there shall be no more sorrow, nor crying, neither shall there be any more pain."

Nor, again, do we need a heavenly revelation to teach us, that "man that is born of a woman," as he is "full of trouble," so also is he "short of days;" that he "cometh forth like a flower, and is cut down; he fleeth also as a shadow, and continueth not." However pure from interruption, however complete in its enjoyment, we may suppose the fairest condition of earthly existence, it is *brief* and *transitory* withal. The most splendid crown which this world can bestow is atter all "corruptible:" no better than the chaplet of wild olive or parsley, which encircled the brows of the victorious champion at the Olympic or the Isthmian games; the transient pride and ornament of a day. But the Christian's crown is a "crown of life," as well "of glory:" incorruptible, unperishable, and that fadeth not away, incapable of decay, ever-flourishing, "eternal in the heavens."

How do all earthly endowments sink into comparative insignificance and worthlessness, when thus considered! Behold the noblest, the strongest, the most powerful, the most prosperous, the wealthiest, the loveliest, the most beloved and admired, hitherto the most exempt from suffering, the most abounding in enjoyment and delight, among the children of men; behold him bidding at length a farewell, an everlasting farewell, to all his earthly sources of enjoyment, "making his bed in darkness, and saying to corruption, Thou art my father; and to the worm, Thou art my mother and my sister:" and then cast up your eyes above, and see heaven opened; and contemplate those whose names are written in the Lamb's book of life, "clothed with incorruption and immortality;" and remember how of them it has been said that "they cannot die any more," for "there shall be no more death;" and what argument can succeed in persuading you, if this contemplation shall fail to persuade you, to form a right estimate of the comparative value of heavenly and of earthly things; and to "set your affection upon, and to seek after the things not in earth but in heaven."—BISHOP MANT'S *Happiness of the Blessed*.

No labour shall be thought too great for the searcher after truth.—BISHOP HOPKINS.

The gifts of God are to be enjoyed, when the Giver is remembered.—WALTER SCOTT.

THOUGHTS FOR THE CITY.

Our on the city's hum!
My spirit would flee from the haunts of men,
To where the woodland and leafy glen
Are eloquently dumb.

These dull brick walls which span
My daily walks, and which shut me in;
These crowded streets with their busy din—
They tell too much of man.

Oh! for those dear wild flowers,
Which in the meadows so brightly grew,
Where the honey-bee and blithe bird flew
That gladdened boyhood's hours.

Out on these chains of flesh!
Binding the pilgrim, who fain would roam
To where kind Nature hath made her home,
In bowers so green and fresh.

But is not Nature here?
From these troubled scenes look up and view
The orb of day, through the firmament blue,
Pursue his bright career.

Or, when the night-dews fall,
Go watch the moon, with her gentle glance
Flitting over that clear expanse,
Her own broad star-lit hall.

Mortal the earth may mar,
And blot out its beauties one by one;
But he cannot dim the fadeless sun,
Or quench a single star.

And o'er the dusky town
The greater light that ruleth the day,
And the heavenly host in their night array,
Look gloriously down.

So, 'mid the hollow mirth,
The din and strife of the crowded mart,
May we ever lift up the eye and heart
To scenes above the earth.

Blest thought, so kindly given,
That though he toil with his boasted might,
Man cannot shut from his brother's sight
The things and thoughts of heaven.—WINSLOW.

BURIAL IN PORTUGAL.

ONE evening the sharp ring of the bell summoned me to the balcony, but I at once saw that there was something unusual in the procession; the number of persons was greater, and they were travelling at a jog-trot, very inimical to the interests of charity. As they came nearer, I saw by the fierce light flung by torches, of which there were six or eight, that four of the men bore some burden; and looking more attentively, I soon discovered its nature—it was a corpse, stretched on its back in a long wooden tray, precisely similar to those made use of in England by butchers; the dead man was in full costume, evidently dressed in his best; but what excited the greatest horror in me, was the fact that the tray was far too short for the body; and the head, the arms, and the legs, were hanging over it, and jerking up and down as the bearers carelessly scrambled along the roughly paved streets.

The process of interment, I was told by an officer who had the curiosity to leave our house and follow the procession, was as summary as the journey to the grave; the "narrow bed" was also a frightfully shallow one, the face of the corpse being not more than three inches lower than the surface of the earth. Into this mis-shapen grave he was flung without the least ceremony; a slight covering of soil was scattered over him, and then came the last horror of this revolting, this humiliating mode of interment; the sexton jumped upon the body, and with a heavy wooden rammer literally reduced it to a jelly! The reason given to my friend for this savage proceeding was, that it would prevent the dogs from tearing up the body: and this because they lacked the energy to bestow upon a fellow christian a coffin and a grave! The beautiful monastery of St. Jeronymo is a favourite burial-place for infants; I cannot now charge my memory with the reason of this preference, but I know that some superstition is attached to it. It is a very com-

mon thing to meet four or five *cejas* (a carriage which resembles a cabriolet travestied) on the same morning, each holding a lady and gentleman in full dress, and a little wooden tray containing a dead infant gaily attired in flowers and coloured ribbons. These *cejas* drive to the monastery, the occupants alight, remain for a time in prayer before the high altar, and then quietly taking the child out of the tray they lay it down on the marble pavement of the chapel wherever they please, leaving money beside it to remunerate the monks for the trouble of its burial; and so depart without a tear, or that "longing, lingering look" which might create for after years another, later memory of the early lost! And yet it is, I was told, generally the parents who thus bear their children to their cold resting-place in that proud pile. The little creatures, clad in their revolting finery, have precisely the appearance of waxen images; and a friend of ours, who one day walked into the chapel, and saw as many as six of these poor little beings on the pavement, actually lifted one to look at it: he said afterwards that he never experienced so sickly a sensation as he did when he discovered it was a dead child! As I knew the nature of these gaudy deposits, I never ventured sufficiently near to them to inspect the materials of their showy apparel; and was very much surprised, on expostulating with a Portuguese lady on the folly of burying infants in such costly clothes, by her assuring me that all this finery cost no more than six *centes* (sevenpence halfpenny), and was invariably purchased at a *depôt* for such articles, as it made the *meninos* (little children) look very pretty.—MISS PARDOE'S *Traits of Portugal*.

MANUFACTURE OF MOSAIC AT ROME.

LEAVING St. Peter's, we walked to see the manufactory of mosaic. It differs from the *pietra-dura* in this, that while stones are employed in the Florentine mosaic, the material used in the Roman is a composition of lead, tin, and glass, smelted and mixed with colours: of this there are said to be eighteen thousand shades. We walked through a long room lined with cases, in which this is arranged, to the workshops. Here we watched the progress of the mosaic manufacture for some time. In an iron frame is placed a stone, the size of the intended picture: and on it is spread, inch by inch, a kind of mastic, which when dry becomes as hard as flint. While yet soft, the workman inserts in it the small pieces of which the mosaic is formed, cut and ground with the utmost nicety to the shape required. The time necessary for the completion of these pictures is of course great, and the expense proportionate, some costing nearly 5000*l*.

When the copyist has faithfully executed his task, there is still much to be done: the mosaic is laid on a table, and the interstices are filled with a peculiar sort of wax, prepared for this purpose; the surface is then ground perfectly smooth, and the whole polished. The subjects generally chosen are the finest pictures of the old masters; and it is wonderful to see the beautiful copies produced by such mechanical means.—*Letters from Italy*.

DURING the reign of Peter the First, Czar of Russia, it was the custom of that tyrant to punish those nobles who offended him, by an imperial order that they should become *fools*: from which moment the unfortunate victim, however endowed with intellect, instantly became the laughing-stock of the whole court; he had the privilege of saying everything he chose, at the peril, however, of being kicked or horsewhipped, without daring to offer any sort of retaliation; everything he did was ridiculed, his complaints treated as jests, and his sarcasms sneered at and commented on, as marvellous proofs of understanding in a fool. The Empress Anne surpassed this abominable cruelty, but sometimes mingled in her practices so much of oddity that it was impossible not to be entertained. Once she decreed that a certain Prince G— should become a hen, to punish him for some trifling misdemeanor; and for this purpose she ordered a large basket, stuffed with straw, and hollowed into a nest, with a quantity of eggs inside, to be placed conspicuously in one of the principal rooms at court. The prince was condemned, on pain of death, to sit upon this nest, and render himself to the last degree ridiculous by imitating the cackling of a hen.—*Memoirs of the Princess Daschkaw*.